StoryVerse: Towards Co-authoring Dynamic Plot with LLM-based Character Simulation

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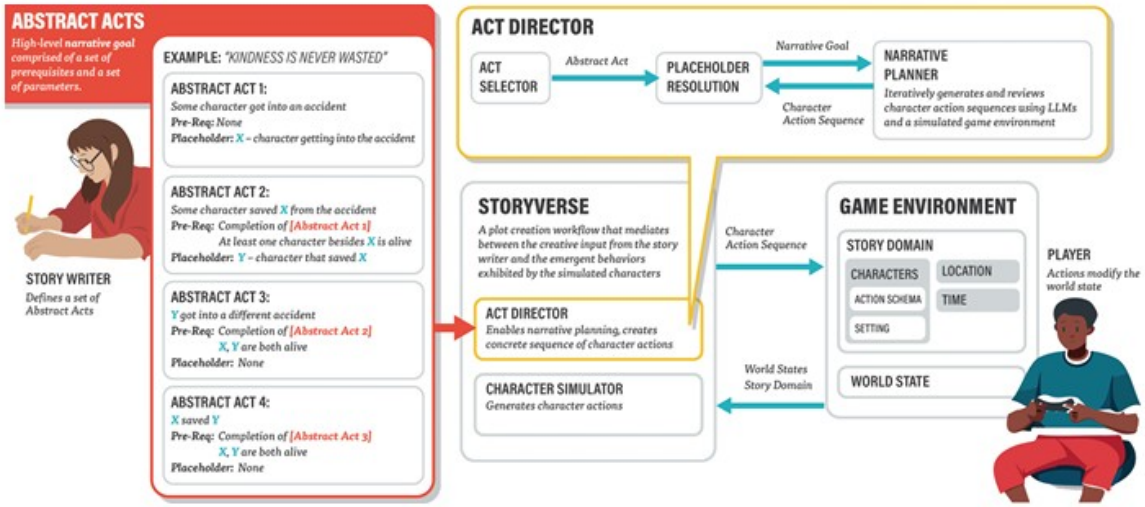
INTRODUCTION AND PROBLEM STATEMENT

StoryVerse introduces a dynamic plot creation system for games that balances the writer’s intent with AI-driven character behaviors and player interactions. It uses Large Language Models (LLMs) to simulate characters and generate adaptive, emergent narratives, allowing stories to evolve naturally based on character actions, player decisions, and the game state.

Traditional narrative planning relies on predefined rules (knowledge bases), limiting the complexity and flexibility of stories. On the other hand, LLM-driven characters generate emergent behaviors, making it difficult to control the plot’s progression. The key challenge lies in balancing authorial control with decentralized character actions to create engaging, adaptive narratives.

Solution: StoryVerse System



Components of StoryVerse And Implementation

Abstract Acts: Abstract acts provide high-level narrative goals (e.g., “A character faces danger”) that adapt dynamically through LLM-driven behavior and player actions. Each act includes a goal, prerequisites (conditions), and placeholders (variables) to ensure coherent, branching stories.

Act Director: The Act Director uses LLMs and abstract acts to generate character actions, replacing placeholders with specific content (e.g., "Y saved X" becomes "The dove saved the ant"). It ensures coherency, feasibility, and character motivation through an iterative process, updating the game state and evolving the story logically.

Implementation: A minimal version of AgentVerse was used for character simulation, with each character having textual descriptions and structured memory updated through actions executed at each timestep using GPT-4-0125-preview. A game environment proxy manages and updates the world state.

Strengths of the StoryVerse paper

Balanced Control and Dynamic Storytelling: Combines authorial intent with LLM-driven character behavior and player actions, ensuring the narrative is both structured and flexible.

Adaptive and Unique Playthroughs: Abstract acts allow the plot to adapt dynamically to different game states, character behaviors, and player decisions, making each experience unique.

Iterative Planning and Realistic Characters: The Act Director’s iterative narrative planning ensures plot coherence, feasibility, and motivation, while LLM-powered characters act realistically without needing hand-crafted rules.

Versatile Across Story Domains: Demonstrated with multiple story domains (*The Ville* and *The Ant & Dove*), showing the system’s ability to adapt across different storytelling contexts.

Weakness of the StoryVerse paper

Dependency on LLMs: Relies heavily on LLMs like GPT-4, which may introduce latency issues and inconsistent behavior during gameplay.

Limited Narrative Coherence Over Time: Emergent behaviors from LLMs may struggle to maintain long-term narrative consistency, especially in complex stories.

Lack of Full Writer Control: Although abstract acts provide structure, unexpected character actions could still disrupt the writer's intended plot progression.

Resource-Intensive Implementation: Running multiple LLM queries for narrative planning and character simulation can be computationally expensive, limiting scalability in real-time games.

StoryVerse Relates to Story Generation and Interactive Fiction

Story_Generation: StoryVerse is directly tied to story generation by using abstract acts and LLMs to create dynamic plots. It generates stories that evolve based on character actions, player decisions, and world states, making each playthrough unique. The use of LLM-powered characters ensures the narrative emerges naturally through interactions, without requiring predefined scripts or knowledge bases.

Interactive Fiction: StoryVerse aligns with interactive fiction by allowing player actions to impact the narrative in real-time. Players become co-authors, influencing the progression and outcomes of the story. This system bridges the gap between authorial control and player-driven experiences.

Thank You!